WHAT IS CLAIMED IS:

1. A process for preparing polyolefin polymerization catalysts comprising the steps of:

a) preparing a homogeneous magnesium solution by heating:

i) magnesium compounds;

ii) alcohols having 5 or more carbon atoms; and

iii) hydrocarbon solvents;

b) preparing magnesium precipitates by sequentially adding alcohols to the homogeneous solution prepared in step a);

c) adding primary organic aluminum compounds or alkylmagnesium halides to magnesium precipitates prepared in step b);

d) adding titanium compounds to magnesium precipitates that passed through step c);

e) adding secondary organic aluminum compounds or electron donors to the magnesium precipitates that passed through step d); and

f) filtering, washing, and drying the magnesium precipitate solution that passed through step e).

2. A process for preparing polyolefin polymerization catalysts in accordance with claim 1, wherein the magnesium compounds of step a) are: magnesium halides such as magnesium chloride, magnesium fluoride, magnesium iodide, etc.; alkoxymagnesium halides such as methoxymagnesium chloride, ethoxymagnesium chloride, etc.; alkoxymagnesiums such as ethoxymagnesium, n-propoxymagnesium, butoxymagnesium, 2-ethylhexosymagnesium, etc.; aryloxymagnesiums such as phenoxymagnesium, etc.; or magnesium carbonates such as magnesium lauric acid, magnesium stearate, etc.

3. A process for preparing polyolefin polymerization catalysts in accordance with claim 1, wherein the alcohols of step b) are one or more alcohols selected from the group consisting of methanol, ethanol, n-propanol, isopropanol, n-butanol, and tertiary butanol, or a mixture thereof.

4. A process for preparing polyolefin polymerization catalysts in accordance with claim 1, wherein the primary organic aluminum compounds of step c) are compounds represented as in the following Chemical Formula 1 or Chemical Formula 2:

[Chemical Formula 1]

$R^1_mAl(OR^2)_nH_pX_q$

where R^1 and R^2, each of which can be the same or different, are hydrocarbon groups having 1 to 10 carbon atoms, X is a halogen atom, $0 < m \leq 3$, $0 \leq n < 3$, $0 \leq p < 3$, $0 \leq q < 3$, and $m+n+p+q=3$;

[Chemical Formula 2]

$M^1AlR^1_4$

where M^1 is Li, Na, or K, and R^1 is a hydrocarbon group having 1 to 10 carbon atoms.

5. A process for preparing polyolefin polymerization catalysts in accordance with claim 1, wherein the magnesium halides of step c) are represented as in the following Chemical Formula 3:

[Chemical Formula 3]

RMgX

where R is a hydrocarbon group having 1 to 10 carbon atoms, and X is a halogen atom.

6. A process for preparing polyolefin polymerization catalysts in accordance with claim 1, wherein the titanium compounds of step d) are represented as in the following Chemical Formula 4:

[Chemical Formula 4]

$Ti(OR^1)_a(R^2)_bX_c$

where R^1 and R^2 are hydrocarbon groups, X is a halogen atom, $a+b+c=4$, $a \geq 0$, $b \geq 0$, and $c \geq 0$.

7. A process for preparing polyolefin polymerization catalysts in accordance with claim 1, wherein the secondary organic aluminum compounds of step e) are represented as in the above Chemical Formula 1 or Chemical Formula 2.

8. A process for preparing polyolefin polymerization catalysts in accordance with claim 1, wherein the electron donors of step e) are compounds as represented in the following Chemical Formula 5 or phthalic anhydride:

[Chemical Formula 5]

R^1COOR^2, $R^3OOC\text{-}C_6H_4\text{-}COOR^4$

where R^1 is a hydrocarbon group, R^2, R^3, and R^4 are hydrocarbons or hydrogen.

9. A process for preparing titanium catalysts for polyolefin polymerization comprising the steps of:

a) preparing a homogeneous solution by agitating:

i) magnesium compounds;

ii) alcohols having 6 or more carbon atoms; and

iii) hydrocarbon solvents;

b) preparing a mixture by adding alcohols having 5 or less carbon atoms to the homogeneous solution prepared in step a); and

c) contacting the mixture prepared in step b) with titanium halide compounds.

10. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9, wherein an input amount of alcohols having 6 or more carbon atoms of ii) per one mole of magnesium compounds of i) of step a) is from 0.5 to 10 moles, and an input amount of hydrocarbon solvents of iii) is 15 or more moles.

11. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9, wherein a magnesium concentration of the homogeneous solution prepared in step a) is from 5 to 10 g/ℓ .

12. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9, wherein an added amount of alcohols having 5 or less carbon atoms of step b) is 0.5 to 6 moles per one mole of magnesium compound.

13. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9, wherein a contact temperature of a mixture of step c) and titanium halide compounds is from –50 to 100 ℃.

14. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9, wherein the magnesium compounds of i) of step a) are one or more compounds selected from the group consisting of: magnesium halides such as magnesium chloride, magnesium bromide, magnesium fluoride, and magnesium iodide; alkoxymagnesium halides such as methoxymagnesium chloride, ethoxymagnesium chloride, isoproxymagnesium chloride, butoxymagnesium chloride, and octoxymagnesium chloride; aryloxymagnesium halides such as phenoxymagnesium chloride; and alkoxymagnesiums such as ethoxymagnesium, isoproxymagnesium, and butoxymagnesium.

15. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9, wherein the alcohols having 6 or more carbon atoms of ii) of step a) are one or more alcohols selected from the group consisting of: aliphatic alcohols such as n-hexanol, n-heptanol, n-octanol, decanol, dodecanol, 2-methylpentanol, 2-ethylbutanol, and 2-ethylhexanol; arylcyclic alcohols such as cyclohexanol and methylcyclohexanol; and aromatic alcohols such as benzyl alcohol, methylbenzyl alcohol, isopropylbenzyl alcohol, and α -methylbenzyl alcohol.

16. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9, wherein the hydrocarbon solvents of iii) of step a) are selected from the group consisting of: aliphatic hydrocarbons such as pentane, hexane, heptane, octane, decane, dodecane, tetradecane, and kerosene; arylcyclic hydrocarbons such as cyclicpentane, cyclichexane, cyclicoctane, methylcyclicpentane, and methylcyclic hexane; aromatic hydrocarbons such as benzene, toluene, xylene, ethylbenzene, and cumene; and hydrocarbon halides such as dichloroethane, dichloropentane, trichloroethane, carbon tetrachloride, and chlorobenzene.

17. A process for preparing titanium catalysts for polyolefin

polymerization in accordance with claim 9, wherein the alcohols having 5 or less carbon atoms of step b) are one or more alcohols selected from the group consisting of methanol, ethanol, isopropanol, n-butanol, tert-butanol, and n-pentanol.

18. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9, wherein the titanium halide compounds of step c) are selected from the group consisting of: titanium tetrahalides such as $TiCl_4$, $TiBr_4$, and TiI_4; alkoxytitanium trihalides such as $Ti(OCH_3)Cl_3$, $Ti(OC_2H_5)Cl_3$, and $Ti(OC_2H_5)Br_3$; alkoxytitanium dihalides such as $Ti(OCH_3)_2Cl_2$, $Ti(OC_2H_5)_2Cl_2$, and $Ti(OC_2H_5)_2Br_2$; and alkoxytrititanium halides such as $Ti(OCH_3)_3Cl$, $Ti(OC_2H_5)_3Cl$, and $Ti(OC_2H_5)_3Br$.

19. A process for preparing titanium catalysts for polyolefin polymerization in accordance with claim 9 comprising the steps of:

a) preparing a magnesium chloride homogeneous solution by adding 2-ethylhexylalcohol and hexane to magnesium chloride, agitating and dissolving at a temperature of 100 to 150 ℃;

b) preparing a mixture by adding ethanol and methanol to the magnesium chloride homogeneous solution of step a); and

c) contacting the mixture of step b) with titanium tetrachloride at a temperature of 10 to 50 ℃.

20. A solid titanium catalyst for polyolefin polymerization prepared according to the preparation process of claim 9.

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